

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA21 | Drayton Bassett, Hints and Weeford
Construction assessment (SV-003-021)
Sound, noise and vibration

November 2013

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA21 | Drayton Bassett, Hints and Weeford

Construction assessment (SV-003-021)

Sound, noise and vibration

November 2013



Department
for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

A report prepared for High Speed Two (HS2) Limited.

High Speed Two (HS2) Limited,
Eland House,
Bressenden Place,
London SW1E 5DU

Details of how to obtain further copies are available from HS2 Ltd.

Telephone: 020 7944 4908

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.hs2.org.uk

High Speed Two (HS2) Limited has actively considered the needs of blind and partially sighted people in accessing this document. The text will be made available in full on the HS2 website. The text may be freely downloaded and translated by individuals or organisations for conversion into other accessible formats. If you have other needs in this regard please contact High Speed Two (HS2) Limited.



Printed in Great Britain on paper
containing at least 75% recycled fibre.

Appendix SV-003-021

| | | |
|-----------------------|------------------------------------|-----|
| Environmental topic: | Sound, noise and vibration | SV |
| Appendix name: | Construction assessment | 003 |
| Community forum area: | Drayton Bassett, Hints and Weeford | 021 |

Contents

| | |
|--------------------------------------------------------|----------|
| Appendix SV-003-021 | 1 |
| 1 Introduction | 3 |
| 1.2 Evaluation of impacts and effects | 3 |
| 2 Scope, assumptions and limitations | 5 |
| 2.1 Regional and local policy guidance | 5 |
| 2.2 Engagement | 5 |
| 2.3 Methodology | 5 |
| 2.4 Assumptions | 6 |
| 2.5 Limitations | 6 |
| 3 Environmental Baseline | 7 |
| 3.1 Existing baseline | 7 |
| 3.2 Future baseline | 7 |
| 4 Effects arising during construction | 8 |
| 4.1 Introduction | 8 |
| 4.2 Avoidance and mitigation measures | 8 |
| 4.3 Quantitative identification of impacts and effects | 8 |
| 4.4 Assessment of significant effects | 19 |

List of tables

| | |
|-------------------------------------------------------------------------------------------------|----|
| Table 1: Assessment of construction induced ground-borne vibration at residential receptors | 10 |
| Table 2: Assessment of construction induced ground-borne vibration at non-residential receptors | 11 |
| Table 3: Assessment of construction noise at residential receptors | 13 |
| Table 4: Assessment of construction noise at non-residential receptors | 16 |
| Table 5: Assessment of construction traffic noise levels | 19 |

1 Introduction

- 1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these is an introduction to the relevant route-wide methodology, assumptions and assessment (Volume 5: Appendix SV-100-000). This relates to the sound, noise and vibration assessment for all community forum areas (CFA).
- 1.1.2 For the Drayton Bassett Hints and Weeford community forum area(CFA21), the other three sections are as follows:
- baseline sound, noise and vibration (Appendix SV-002-021);
 - construction sound, noise and vibration (Appendix SV-003-021) (this appendix); and
 - operational sound, noise and vibration (Appendix SV-004-021).
- 1.1.3 The outcomes of the assessment are summarised in Volume 2: CFA21 Report, Chapter 11 Sound, Noise and Vibration
- 1.1.4 Maps referred to throughout the sound, noise and vibration appendices are contained in the Volume 5 map book.
- 1.1.5 This appendix presents the likely noise and vibration impacts, effects and significant effects arising from the construction of the Proposed Scheme for the Drayton Bassett, Hints and Weeford area on:
- people, primarily where they live ('residential receptors') in terms a) individual dwellings and b) on a wider community basis, including any shared community open areas; and
 - community facilities such as schools, hospitals, places of worship, and also commercial properties such as offices and hotels, collectively described as 'non-residential receptors' and 'quiet areas'.
- 1.1.6 The assessment of likely impacts, effects and significant effects from construction noise and vibration on agricultural, community, ecological or heritage receptors and the assessment of tranquillity are presented in the following documents within Volume 5:
- | | |
|-----------------------------------|---------------------|
| • Agriculture, forestry and soils | Appendix AG-001-021 |
| • Community | Appendix CM-001-021 |
| • Ecology | Appendix EC-005-021 |
| • Heritage | Appendix CH-003-021 |
| • Landscape and Visual | Appendix LV-001-021 |

1.2 Evaluation of impacts and effects

- 1.2.1 This appendix provides a quantitative assessment of construction noise and vibration impacts/effects and a qualitative assessment of likely significant effects, based on the

impacts/effects identified and other local context information consistent with the scope and methodology defined for the Proposed Scheme.

- 1.2.2 Indirect effects arising from temporary changes in traffic patterns on the existing road network as a consequence of constructing the Proposed Scheme are also reported in this appendix, where they would occur within the study area as defined in Volume 5: Appendix SV-001-000.
- 1.2.3 In undertaking the assessment of sound and vibration, consistent with Environmental Impact Assessment (EIA) Regulations and emerging National Planning Practice Guidance¹ a differentiation between impacts effects, adverse effects and significant effects is made. Further information is provided in Volume 5: Appendix SV-001-000.
- 1.2.4 The assessment of impacts and effects has been undertaken at assessment locations that are representative of a number of dwellings or other sensitive receptors. The Assessment Locations employed in this assessment are presented on map series Sv-03 in the CFA21 Volume 5 sound, noise and vibration map book.

¹ Information is provided in the emerging National Planning Practice Guidance – Noise <http://planningguidance.planningportal.gov.uk>, refer to the noise exposure hierarchy.

2 Scope, assumptions and limitations

2.1 Regional and local policy guidance

2.1.1 The policy framework for sound, noise and vibration is set out in Volume 1 and in Appendix SV-001-000. As part of the engagement with local authorities through the Planning Forum Sub Group – Acoustics, information regarding any specific local planning guidance in respect of noise and vibration has been requested. Whilst no information has been received for this study area via the Planning Forum Sub Group – Acoustics, the following local policy guidance on noise and vibration has been identified:

- The Lichfield District Council – Local Plan – Our Strategy (July 2012).

2.1.2 This guidance has been considered as part of formulating the detailed application of the impact and significance criteria set out in Volume 5, Appendix SV-001-000.

2.2 Engagement

2.2.1 Details of engagement on a route-wide basis with the local and county authorities' Environmental Health Practitioners via the Planning Forum Sub Group – Acoustics, is set out in Volume 1.

2.2.2 Engagement with communities has been via the Community Forums, as set out in Volume 1. In respect of sound, noise and vibration the following discussions have taken place:

- general discussions in respect of local issues, including possible ways to avoid and mitigate the potential impacts of noise or vibration;
- September/October 2012; a specific presentation about sound, noise and vibration with discussion afterwards with one of the project team specialists;
- November/December 2012; specific request for the Community Forum to propose baseline sound monitoring locations;
- January/February 2013; feedback to the Community Forum on any proposed baseline monitoring locations; and
- verbal/written response to questions regarding sound, noise and vibration.

2.3 Methodology

2.3.1 The methodology used for the assessment of airborne sound, ground-borne sound and vibration impacts and the determination of significant effects is defined in the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-001-000/1), is clarified in a number of areas by the SMR addendum (Volume 5: Appendix CT-001-000/2). Further information is contained in Volume 5: Appendix SV-001-000.

2.4 Assumptions

- 2.4.1 Route-wide assumptions are outlined in Volume 1 and are further detailed in Appendix SV-001-000. Local assumptions that apply to the assessment of construction sound noise and vibration within this CFA are set out in Volume 2: Report 21.

2.5 Limitations

- 2.5.1 The route-wide limitations and the approach adopted to assure that they will not impact the robust assessment of sound, noise and vibration are presented in Volume 5: Appendix SV-001-000. In this area, there are a number of locations where the land or property owners did not permit baseline sound level monitoring to be undertaken at their premises. However, sufficient information has been obtained to undertake the assessment. Further information is provided in Volume 5: Appendix SV-002-021.

3 Environmental Baseline

3.1 Existing baseline

- 3.1.1 Baseline sound level data has been collected at locations representative of the airborne sound-sensitive receptors. The existing and future baseline airborne sound levels derived from these measurements are given in Volume 5: Appendix SV-002-021. Details of the baseline data collection and the methodology are given in Volume 5: Appendix SV-001-000 and specifically for this study area in Volume 5: Appendix SV-002-021.

3.2 Future baseline

- 3.2.1 The assessment of noise from construction activities assumes a baseline year of 2017 which represents the period immediately prior to the start of the construction period. As a reasonable worst case, it has been assumed that no change in baseline sound levels will occur between the existing baseline (2012/13) and the future baseline year of 2017. The assessment of noise from construction traffic assumes a baseline year of 2021, representative of the middle of the construction period when the construction traffic flows are expected to be at their peak. Further information can be found in the Traffic and Transport assessment (Appendix TT-001-021).

4 Effects arising during construction

4.1 Introduction

4.1.1 The assessment is reported first for ground-borne sound and vibration and then for airborne sound. Under each of these headings, the results of the quantitative identification of impacts and effects are presented. This is followed by the identification of significant effects and the evidence used to support these conclusions.

4.1.2 The structure of this assessment report is:

- avoidance and mitigation measures;
- quantitative identification of impact and effects;
 - ground-borne sound and vibration:
 - residential; and
 - non-residential;
 - airborne sound:
 - residential; and
 - non-residential;
- assessment of impacts and effects:
 - residential receptors: direct effects – dwellings;
 - residential receptors: direct effects – communities;
 - residential receptors: indirect effects;
 - non-residential receptors: direct effects;
 - non-residential receptors: indirect effects; and
 - cumulative effects from the proposed scheme and other committed development.

4.2 Avoidance and mitigation measures

4.2.1 These are set out in Volume 2: Report 21.

4.3 Quantitative identification of impacts and effects

Ground-borne vibration

4.3.1 Assessment locations defined for the quantitative assessment of impacts are shown on map series SV-02 in the CFA21 Volume 5 sound, noise and vibration map book.

4.3.2 For each Assessment Location, the assessment results for residential and non-residential receptors are presented in Table 1. Explanation of the information in

Table 1 is provided in Volume 5: Appendix SV-001-000, with the following additional notes:

| | |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Where the significant effect column is highlighted, then a significant effect is identified at the referenced community, or individual receptor. |
| * | Significant effect – the quantitative impact methodology has identified either: <ol style="list-style-type: none"> 1) no impact at this receptor but further information (see assessment) has identified that a significant effect is nonetheless likely; or 2) an impact at this receptor which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect |
| ~ | Significant effect – the forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000) |
| A | Type of effect – adverse effect |
| S | Type of effect – significant adverse effect |
| NA | Type of effect – not generally an adverse effect |
| B | Type of effect – for non-residential receptors further detail about the type of effect is set out in the text of Volume 5: Appendix SV-001-000 |
| V1 | Type of receptor – (V1) vibration sensitive research and manufacturing, hospital, and university equipment, (V2) hotels, hospital wards and education dormitories, (V3) offices, schools and places of worship, (V4) workshops |
| T | Receptor design – typical |
| S | Receptor design – special |

Appendix SV-003-021 | Effects arising during construction

Table 1: Assessment of construction induced ground-borne vibration at residential receptors

| Assessment location | | Impact criteria | | | | Significance criteria | | | | | | | | | Significant effect |
|---------------------|-----------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------|---|----------------------------------------------------------------------|-----------------------|-------------------------------|------------------|-----------------|----------------------|----------------|-----------------|--------------------------|-------------------|--------------------|
| ID | Area represented | Peak particle velocity (PPV) [mm/s] on foundation | Typical/highest monthly indoor vibration dose value (VDV) [m/s ^{1.75}] | | Construction activity resulting in highest forecast vibration levels | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Impact duration [months] | Mitigation effect | |
| 17207 | Tamworth Road, Lichfield | 0.17 | 0.05/0.05 | - | Earthworks | NA | 1 | R | T | - | - | - | - | - | |
| 26298 | Watling Street, Weeford, Lichfield | 0.14 | 0.07/0.07 | - | Earthworks | NA | 1 | R | T | - | - | - | - | - | |
| 26552 | Sutton Road, Tamworth | 0.42 | 0.1/0.1 | - | Earthworks | NA | 1 | R | T | - | - | - | - | - | |
| 27298 | Drayton Lane, Drayton Bassett, Tamworth | 0.11 | 0.06/0.06 | - | Earthworks | NA | 1 | R | T | - | - | - | - | - | |
| 701082 | Jerry's Lane, Lichfield | 0.72 | 0.3/0.3 | - | Earthworks | A | 1 | R | T | - | - | - | 14 | - | ~ |
| 720001 | Bangley Lane, Hints | 1.98 | 0.69/0.69 | - | Earthworks | A | 1 | R | T | - | - | - | - | - | ~ |

Table 2: Assessment of construction induced ground-borne vibration at non-residential receptors

| Assessment location | | Impact criteria | | | | Significance criteria | | | | | | | | | Significant effect |
|---------------------|-------------------------|--------------------------|-----------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------|-----------------------|-------------------------------|------------------|-----------------|----------------------|----------------|-----------------|---------------------|-------------------|--------------------|
| ID | Area represented | PPV [mm/s] on foundation | Typical/highest monthly indoor VDV [m/s ^{1.75}] | | Construction activity resulting in highest forecast vibration levels and its duration (months) | Type of effect | Number of impacts represented | Type of receptor | Receptor resign | Existing environment | Unique feature | Combined impact | Impact duration [m] | Mitigation effect | |
| | | | Day 0700-2300 | Night 2300-0700 | | | | | | | | | | | |
| 721002 | Bangley Lane, Hints | 0.36 | 0.17/0.17 | - | Earthworks | NA | 1 | R | T | - | - | - | - | - | |
| 701083 | Jerry's Lane, Lichfield | 0.16 | 0.04/0.04 | - | Earthworks | B | 1 | V3 | T | - | - | - | - | - | |

Airborne sound: direct impacts and effects

- 4.3.3 Activities associated with the construction phases of the Proposed Scheme would generate airborne noise. The assessment of the likely impacts and significant effects as a result of the construction noise has considered the effects on:
- residential receptors, both as individual dwellings and communities; and
 - non-residential receptors, including quiet areas.
- 4.3.4 For each type of receptor, subject to the screening distances identified, and based upon supplied plant information from engineers, the typical and highest monthly $L_{Aeq,T}$ noise levels from construction activities have been calculated at the façade of all assessment locations, which are representative of a number of receptors in the study area.
- 4.3.5 The assessment results, impact criteria and significance criteria for the assessment of the scheme at residential and non-residential receptors are presented in Table 3 and Table 4 respectively.
- 4.3.6 Explanation of the information within Table 3 and Table 4 is provided in Volume 5: Appendix SV-001-000, with the following additional notes:

| | |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Where the significant effect column is highlighted, then a significant effect is identified at the referenced community, or individual non-residential receptor |
| * | Significant effect – the quantitative impact methodology has identified either: <ol style="list-style-type: none"> 1) no impact at this receptor but further information (see assessment) has identified that a significant effect is nonetheless likely; or 2) an impact at this receptor which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect |
| ~ | Significant effect – the forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000) |
| A | Type of effect – adverse effect |
| S | Type of effect – significant adverse effect |
| NA | Type of effect – not generally an adverse effect |
| B | Type of effect – for non-residential receptors further detail about the type of effect is set out in the text of Volume 5: Appendix SV-001-000 |
| R | Type of receptor – residential |
| G | Type of receptor – (G1) theatres, large auditoria and concert halls, (G2) sound recording and broadcast studios, (G3) places of meeting for religious worship, courts, cinemas, lecture theatres, museums and small auditoria or halls, (G4) schools, colleges, hospitals, hotels and libraries, and (G5) offices and general commercial premises |
| T | Receptor design – typical |
| S | Receptor design – special |
| H | Existing environment – high existing ambient noise levels, day >75dB, evening >65dB or night >55dB L_{pAeq} at the façade |
| L | Existing environment – low existing ambient noise levels, day ≤45dB, evening ≤45dB or night ≤35dB L_{pAeq} at the façade |
| NI | Mitigation effect – identified as likely to qualify for noise insulation under the draft CoCP |

Table 3: Assessment of construction noise at residential receptors

| Assessment location | | Impact criteria | | | | Significance criteria | | | | | | | | | Significant effect |
|---------------------|------------------------------------|--------------------------------------------------------------------------------------------------|------------------------|----------------------|------------------------------------------------------------------|-----------------------|-------------------------------|------------------|-----------------|----------------------|----------------|-----------------|--------------------------|-------------------|--------------------|
| ID | Area represented | Typical/highest monthly outdoor L _{pAeq} [dB] at the facade [Assessment category A/B/C] | | | Construction activity resulting in highest forecast noise levels | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Impact duration [months] | Mitigation effect | |
| | | Day 07:00-19:00 | Evening 19:00-23:00 | Night 23:00-07:00 | | | | | | | | | | | |
| 9023 | Watling Street, Weeford, Lichfield | 59/63 [B] | - | - | Balancing pond earthworks | NA | 3 | R | T | - | - | - | - | - | |
| 9796 | Watling Street, Weeford, Lichfield | 59/65 [B] | - | - | Demolition works | NA | 1 | R | T | - | - | - | - | - | |
| 10142 | Weeford Road, Weeford, Lichfield | 50/56 [B] | - | - | Bridge superstructure | NA | 1 | R | T | - | - | - | - | - | |
| 10165 | Flats Lane, Lichfield | 53/59 [B] | - | - | Demolition works | NA | 2 | R | T | - | - | - | - | - | |
| 10200 | Flats Lane, Lichfield | 54/59 [A] | - | - | Demolition works | NA | 2 | R | T | - | - | - | - | - | |
| 10245 | Flats Lane, Lichfield | 52/57 [B] | - | - | Demolition works | NA | 1 | R | T | - | - | - | - | - | |
| 10260 | Flats Lane, Lichfield | 57/66 [B] | - | - | Road construction | NA | 2 | R | T | - | - | - | - | - | |
| 10331 | Watling Street, Weeford, Lichfield | 60/66 [B] | - | - | Bridge superstructure | NA | 4 | R | T | - | - | - | - | - | |
| 10348 | Watling Street, Weeford, Lichfield | 48/54 [C] | - | - | Road construction | NA | 2 | R | T | - | - | - | - | - | |
| 10365 | Flats Lane, Lichfield | 53/57 [C] | - | - | Road construction | NA | 1 | R | T | - | - | - | - | - | |
| 17154 | Tamworth Road, Lichfield | 58/64 [A] | - | - | Road construction | NA | 1 | R | T | - | - | - | - | - | |
| 17207 | Tamworth Road, Lichfield | 63/70 [A] | - | - | Utilities diversion | A | 1 | R | T | - | - | - | 4 | - | ~ |
| 17209 | Tamworth Road, Lichfield | 51/57 [A] | - | - | Demolition works | NA | 1 | R | T | - | - | - | - | - | |

Appendix SV-003-021 | Effects arising during construction

| Assessment location | | Impact criteria | | | | Significance criteria | | | | | | | | | Significant effect |
|---------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------------------|-----------------------|-----------------------|-------------------------------|------------------|-----------------|----------------------|----------------|-----------------|--------------------------|-------------------|--------------------|
| ID | Area represented | Typical/highest monthly outdoor L _{pAeq} [dB] at the facade [Assessment category A/B/C] | Construction activity resulting in highest forecast noise levels | | | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Impact duration [months] | Mitigation effect | |
| | | Day 07:00-19:00 | Evening 19:00-23:00 | Night 23:00-07:00 | | | | | | | | | | | |
| 17292 | Tamworth Road, Lichfield | 51/56 [B] | - | - | Bridge superstructure | NA | 1 | R | T | - | - | - | - | - | |
| 17298 | Tamworth Road, Lichfield | 52/58 [A] | - | - | Earthworks | NA | 1 | R | T | - | - | - | - | - | |
| 17311 | Tamworth Road, Lichfield | 65/69 [C] | - | - | Road construction | NA | 2 | R | T | - | - | - | - | - | |
| 17316 | Tamworth Road, Lichfield | 50/55 [A] | - | - | Demolition works | NA | 2 | R | T | - | - | - | - | - | |
| 25308 | School Lane, Hints, Tamworth | 55/59 [A] | - | - | Earthworks | NA | 5 | R | T | - | - | - | - | - | |
| 25500 | Drayton Lane, Drayton Bassett, Tamworth | 55/60 [A] | - | - | Utilities Diversion | NA | 1 | R | T | - | - | - | - | - | |
| 25745 | Bangley Lane, Hints, Tamworth | 51/56 [A] | - | - | Earthworks | NA | 6 | R | T | - | - | - | - | - | |
| 25831 | Bangley Lane, Hints, Tamworth | 50/56 [A] | - | - | Road construction | NA | 4 | R | T | - | - | - | - | - | |
| 26298 | Rock Hill, Weeford, Lichfield | 61/66 [C] | - | - | Utilities diversion | NA | 1 | R | T | - | - | - | - | - | |
| 26552 | Sutton Road, Tamworth | 63/68 [B] | - | - | Road construction | NA | 1 | R | T | - | - | - | - | - | |
| 26582 | Bangley Lane, Hints, Tamworth | 57/62 [A] | - | - | Footpath construction | NA | 1 | R | T | - | - | - | - | - | |
| 26608 | Bangley Lane, Hints, Tamworth | 56/60 [A] | - | - | Utilities Diversion | NA | 4 | R | T | - | - | - | - | - | |
| 26678 | Bangley Lane, Hints, Tamworth | 56/60 [A] | - | - | Earthworks | NA | 2 | R | T | - | - | - | - | - | |
| 26713 | Bangley Lane, Hints, Tamworth | 59/66 [A] | - | - | Road construction | A | 1 | R | T | - | - | - | 4 | - | ~ |
| 27298 | Drayton Lane, Drayton Bassett, | 60/66 [A] | - | - | Road construction | A | 1 | R | T | - | - | - | 9 | - | ~ |

| Assessment location | | Impact criteria | | | | Significance criteria | | | | | | | | | Significant effect |
|---------------------|--------------------------|--------------------------------------------------------------------------------------------------|------------------------|----------------------|------------------------------------------------------------------|-----------------------|-------------------------------|------------------|-----------------|----------------------|----------------|-----------------|--------------------------|-------------------|--------------------|
| ID | Area represented | Typical/highest monthly outdoor L _{pAeq} [dB] at the facade [Assessment category A/B/C] | | | Construction activity resulting in highest forecast noise levels | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Impact duration [months] | Mitigation effect | |
| | | Day 07:00-19:00 | Evening 19:00-23:00 | Night 23:00-07:00 | | | | | | | | | | | |
| | Tamworth | | | | | | | | | | | | | | |
| 28361 | Tamworth Road, Lichfield | 47/53 [C] | - | - | Earthworks | NA | 1 | R | T | - | - | - | - | - | |
| 28865 | Levett Road, Lichfield | 47/53 [A] | - | - | Demolition works | NA | 8 | R | T | - | - | - | - | - | |
| 28886 | Jerry's Lane, Lichfield | 45/51 [A] | - | - | Demolition works | NA | 8 | R | T | - | - | - | - | - | |
| 28935 | Tamworth Road, Lichfield | 43/49 [A] | - | - | Demolition works | NA | 14 | R | T | - | - | - | - | - | |
| 28998 | Tamworth Road, Lichfield | 43/49 [C] | - | - | Demolition works | NA | 4 | R | T | - | - | - | - | - | |
| 701068 | Tamworth Road, Lichfield | 42/48 [C] | - | - | Earthworks | NA | 2 | R | T | - | - | - | - | - | |
| 701082 | Jerry's Lane, Lichfield | 71/75 [A] | - | - | Demolition works | A | 1 | R | T | - | - | - | 46 | - | ~ |
| 721001 | Bangley Lane, Hints | 68/76 [A] | - | - | Earthworks | S | 1 | R | T | - | - | - | 20 | NI | CSV-D01 |
| 721002 | Bangley Lane, Hints | 64/70 [A] | - | - | Earthworks | A | 1 | R | T | - | - | - | 14 | - | ~ |

Appendix SV-003-021 | Effects arising during construction

Table 4: Assessment of construction noise at non-residential receptors

| Assessment location | | Impact criteria | | | | Significance criteria | | | | | | | | | Significant effect |
|---------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------|-----------------------|-------------------------------|------------------|-----------------|----------------------|----------------|-----------------|--------------------------|-------------------|--------------------|
| ID | Area represented | Typical/highest monthly outdoor L _{pAeq} [dB] at the facade [Assessment category A/B/C] | | | Construction activity resulting in highest forecast noise levels | Type of effect | Number of impacts represented | Type of receptor | Receptor design | Existing environment | Unique feature | Combined impact | Impact duration [months] | Mitigation effect | |
| | | Day 07:00-19:00 | Evening 19:00-23:00/ Weekend | Night 23:00-07:00 | | | | | | | | | | | |
| 8910 | Old School House Restaurant, Church Hill, Weeford, Lichfield | 45/50 | - | - | Demolition works | B | 1 | G5 | T | - | - | - | - | - | |
| 8926 | General Commercial, Hungry Lane, Weeford, Lichfield | 42/48 | - | - | Demolition works | B | 2 | G5 | T | - | - | - | - | - | |
| 9637 | General Commercial, Rockery Lane, Hints, Tamworth | 49/55 | - | - | Earthworks | B | 1 | G5 | T | - | - | - | - | - | |
| 10142 | Weeford Village Hall, Weeford, Lichfield | 50/56 | - | - | Bridge superstructure | B | 1 | G3 | T | - | - | - | - | - | |
| 17311 | Whittington Arms, Tamworth Road, Lichfield | 65/69 | | | Road construction | B | 1 | G4 | T | - | - | - | - | - | |
| 25881 | St Bartholomew’s Church, School Lane, Hints, Tamworth | 49/52 | - | - | Bridge superstructure | B | 1 | G3 | T | - | - | - | - | - | |
| 26158 | Hints Village Hall, Hints, Tamworth | 47/50 | - | - | Earthworks | B | 1 | G3 | T | - | - | - | - | - | |
| 26177 | Office, School Lane, Hints, Tamworth | 50/55 | - | - | Earthworks | B | 1 | G5 | T | - | - | - | - | - | |
| 27402 | Little Acorns Day Nursery, Jerry Lane | 53/58 | - | - | Earthworks | B | 1 | G4 | T | - | - | - | - | - | |
| 27539 | General Commercial, Sutton Road | 49/53 | - | - | PRoW superstructure | B | 1 | G5 | T | - | - | - | - | - | |
| 700646 | St Mary’s Church, Weeford | 45/49 | - | - | Demolition works | B | 1 | G3 | T | - | - | - | - | - | |
| 701083 | Packington Moor Farm Shop, Jerry’s Lane | 63/68 | - | - | Utility diversion | B | 1 | G5 | T | - | - | - | - | - | |

Airborne sound: indirect effects

- 4.3.7 Construction road traffic associated with the construction phases of the Proposed Scheme would generate airborne noise. Based upon traffic information for the Proposed Scheme, the change in traffic noise level at a reference distance of 10m from the edge of the nearside carriageway resulting from the presence of construction traffic for a given road has been predicted. The results for potentially significant road links are presented in Table 5.
- 4.3.8 Explanation of the information within Table 5 is provided in Volume 5: Appendix SV-001-000, with the following additional notes:

| | |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| | Where the significant effect column is highlighted, then a significant effect is identified on nearby communities or individual receptors |
| Change values | |
| | Yellow denotes a minor impact – a change is of 3-5dB or 1-3dB where a high existing sound level is identified |
| | Orange denotes a moderate impact – a change is of 5-10dB or 3-5dB where a high existing sound level is identified |
| | Red denotes a major impact – a change is of >10dB or >5dB where a high existing sound level is identified |

Table 5: Assessment of construction traffic noise levels

| Road name | Link | Future baseline sound level (dB) | Future baseline sound level + construction traffic (dB) | Change (dB) | Significant effect |
|-------------------|-----------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------|--------------------|
| | | Daytime L _{pAeq,16hr} 07:00-23:00 free-field | Daytime L _{pAeq,16hr} 07:00-23:00 free-field | | |
| Drayton Lane | A453 Cranebrook Hill to Dryton Basset Viaduct Compound | 58.0 | 59.5 | 1.6 | |
| A453 Sutton Road | A446 London Road to B5404 Hints Road | 72.1 | 73.3 | 1.2 | |
| Watling Street | A38 London Road to the Black Brook viaduct compound | 59.8 | 62.9 | 3.2 | |
| A5 | A38 Weeford junction to A453 Sutton Road | 77.2 | 77.7 | 0.5 | |
| Flats Lane | Watling Street to Flats Lane overbridge compound | 56.7 | 57.7 | 1.1 | |
| A51 Tamworth Road | Tamworth Road overbridge Compound to Whittington Common Road junction | 69.1 | 69.2 | 0.1 | |
| A5 | A38 London Road roundabout to the A5148 roundabout | 73.9 | 74.7 | 0.9 | |

4.4 Assessment of significant effects

Residential receptors: direct effects – individual dwellings

- 4.4.1 Taking account of the avoidance and mitigation measures set out in the previous paragraphs, one residential building (located on Bangley Lane closest to the Bangley Lane over-bridge) is forecast to experience noise levels higher than the noise

insulation trigger levels as defined in the draft CoCP. For daytime construction the trigger level is an equivalent continuous noise level of 75dB² measured outdoors.

- 4.4.2 The mitigation measures, including noise insulation, will reduce noise inside all dwellings, such that it does not reach a level where it would significantly affect residents³.

Residential receptors: direct effects – communities

- 4.4.3 The avoidance and mitigation measures in this area will avoid airborne construction noise adverse effects³ on the majority of receptors and communities. Residual temporary noise or vibration effects are identified later in this section.
- 4.4.4 It is anticipated that there may be some night-time working during road and rail possession periods. Night-time construction activities in this area would be restricted to where the route crosses existing railway lines, roads or where newly constructed roads tie into the existing road network for reasons of safety, engineering practicability or to reduce the impact on existing transport. These works are likely to be of short duration, and be limited in the types of activities being undertaken. As a consequence, it is expected that the noise effects from night time activities would be limited in duration and hence would not be considered significant.
- 4.4.5 With regard to noise outside dwellings, the assessment of temporary effects takes account of construction noise relative to existing sound levels.
- 4.4.6 In locations with lower existing sound levels³, construction noise effects³ are likely to be caused by changes to noise levels outside dwellings. These may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life. These effects are considered to be significant when assessed on a community basis taking account of the local context³.
- 4.4.7 In this area, the mitigation measures reduce the effects of outdoor construction noise on the acoustic character around the local residential communities such that the effects are considered to be not significant.

Residential receptors: indirect effects

- 4.4.8 A minor impact, due to construction traffic, is predicted along the A453 Sutton Road and Watling Street. Taking account of incorporated mitigation, the limited number of properties adjacent to these roads and the predicted change in traffic noise levels; no indirect construction noise significant effects have been identified.
- 4.4.9 In certain instances a qualitative assessment has been undertaken. This was the case for assessment of noise due to construction traffic along the Bangley Lane. Construction traffic accesses Bangley Lane via the A453 Sutton Road. It is anticipated that only a small proportion of the total number of vehicles will travel along Bangley Lane with the majority of vehicles continuing on the A453 Sutton Road travelling to either the A453 Sutton Road overbridge compound or the Drayton Lane/Shirral Drive compound. The qualitative assessment has therefore concluded that the impact would be <1dB hence no significant temporary noise effect is considered likely.

² L_{pAeq,0800-1800} measured at the facade.

³ Further information is provided in Volume 5: Appendix SV-001-000.

Non-residential receptors: direct effects

- 4.4.10 Significant construction noise or vibration effects on non-residential receptors are unlikely to occur in this area.

Non-residential receptors: indirect effects

- 4.4.11 Significant noise effects on non-residential receptors arising from construction traffic are unlikely to occur in this area.

Cumulative effects from the Proposed Scheme and other committed development

- 4.4.12 This assessment has considered the potential cumulative construction noise effects of the proposed scheme and other committed developments⁴. In this area, there is no committed development that would be built at the same time as the Proposed Scheme and accordingly, construction noise or vibration from the Proposed Scheme is unlikely to result in any significant cumulative noise effects.

⁴ Refer to Volume 5: Appendix CT-004-000.